

Case Docket No. PHN 17,326

THE COMMISSIONER OF PATENTS AND TRADEMARKS, Washington, D.C. 20231

Enclosed for filing is the patent application of Inventor(s):

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For: Display Device

ENCLOSED ARE:

- ☒ Associate Power of Attorney;
☐ Information Disclosure Statement, Form PTO-1449 and copies of documents listed therein;
☒ Preliminary Amendment;
☒ Specification (8 Pages of Specification, Claims, & Abstract);
☒ Declaration and Power of Attorney:
 (2 Pages of a ☐ fully executed ☒ unsigned Declaration);
☒ Drawing (2 sheets of ☐ informal ☒ formal sheets);
☒ Certified copy of **Europe** application Serial No. **99200671.8**
☒ Other: Authorization Pursuant to 37 C.F.R. 1.136;
☐ Assignment to .

FEE COMPUTATION

CLAIMS AS FILED				
FOR	NUMBER FILED	NUMBER EXTRA	RATE	BASIC FEE - 760.00
Total Claims	10 - 20 =	0	X \$18 =	0.00
Independent Claims	1 - 3 =	0	X \$78 =	0.00
Multiple Dependent Claims, if any			\$260 =	0.00
TOTAL FILING FEE				= \$760.00

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☐ Amend the specification by inserting before the first line the sentence: --This is a continuation-in-part of application Serial No. , filed .--.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Atty. Docket

Triepels et al.

PHN 17,326

Serial No.

Filed: Concurrently

Title: Display Device

Commissioner of Patents and Trademarks
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

Prior to examination, please amend the above-identified application as follows:

In the Specification

Page 1,	above line 1,	insert as a centered heading:
		--BACKGROUND OF THE INVENTION--;
	line 19,	insert as a centered heading:
		--SUMMARY OF THE INVENTION--;
	lines 20-21,	delete "of the type described
		above,";
	line 24,	delete "the invention is
		characterized in that";
	line 25,	change "foil" (1 st and 2 nd
		occurrences) to --laminar
		substrate--;
	line 27,	change "foil" to --laminar substrate--;

Page 2, line 30, insert as a centered heading:
 --BRIEF DESCRIPTION OF THE DRAWINGS--;

line 31, delete in entirety;

Page 3, line 11, insert as a centered heading:
 --DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS--;

line 14, change "two" to --first and second--;

line 31, change "foil" to --laminar substrate--;

line 32, change "foil" to --laminar substrate--;

line 33, change "foil" to --laminar substrate--;

Page 4, line 11, change "foil" to --laminar substrate--;

line 16, change "foil" to --laminar substrate--;

line 21, change "foil" to --laminar substrate--;

line 24, change "foil" to --laminar substrate--;

line 25, change "foil" to --laminar substrate--;

line 26, change "foil" to --laminar substrate--;

line 27, after "the" (first occurrence) insert
 --first-- and change "5" to --3--.

In The Claims

1. (Amended) A display device comprising a first substrate which is provided with a conductor pattern for electrically connecting pixels [in an electrically conducting manner, characterized in that at least a part of the substrate of a foil is] , and having a laminar substrate having opposed sides which are both provided with electrically conducting patterns [on both sides of the foil], which patterns are [mutually through-connected in an] electrically

[conducting manner] connected via at least one [opening in the foil]
through-connection between the opposed sides of the laminar
substrate.

Claim 4, line 2, change "foil" to --laminar substrate--.
Claim 6, line 1, change "foil" to --laminar substrate--.
Claim 8, line 2, change "foil" to --laminar substrate--.
Claim 9, line 3, delete "interpositioned".

In The Abstract

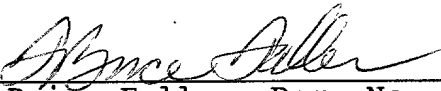
Page 8, last line, delete "Fig. 5".

Remarks

The specification and claims have been amended to correct informalities in language and grammar and to add headings in accordance with MPEP Section 601.

The above amendments are submitted to place this application in proper U.S. format. Entry of the amendment and an early action on the merits are solicited.

Respectfully submitted,

By 
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Display device .

The invention relates to a display device comprising a first substrate which is provided with a conductor pattern for connecting pixels in an electrically conducting manner. A conductor pattern may be understood to mean both a pattern of exclusively column and row conductors and a more extensive pattern in which drive ICs are incorporated.

5 Such display devices, notably liquid crystal display devices, are very generally used in, for example, measuring equipment but also in, for example, portable telephones. Moreover, electroluminescent display devices based on (organic) LEDs find an increasingly wider application.

10 With the on-going miniaturization of electronics, it is possible, on the one hand, to realize more standard drive electronics on the substrate. On the other hand, the need for offering customer-oriented solutions, realizing, for example extra functions, increases simultaneously. Parts of the conductor pattern on the first substrate then become so long that, 15 due to their length, they have a too high resistance. The voltage loss caused thereby leads to too low drive voltages at the area of the pixels, which is at the expense of the correct adjustment of the grey scale or may even lead to non-excitation of the pixel.

20 It is, inter alia, an object of the invention to provide a display device of the type described above, in which, in a reliable manner, the surface of the first substrate is provided with low-ohmic conductors which are connected to the exterior while simultaneously obtaining a maximum freedom of design.

25 To this end, the invention is characterized in that at least a part of the substrate of a foil is provided with electrically conducting patterns on both sides of the foil, which patterns are mutually through-connected in an electrically conducting manner via at least one opening in the foil.

The conductor patterns are preferably realized as metal patterns, with each of the metals being chosen from the group of gold, silver and nickel. The conductor pattern may

assume any desired shape. Due to the choice of the low-ohmic metals as a material for the conductor patterns, the length of a conductor track does not have any influence or hardly has any influence on the resistance. This means that the conductor patterns can be laid around the display section, if desired, and can be connected at any arbitrary place with a conductor for a further (external) contact, for example, a connector.

A first embodiment of a display device according to the invention is characterized in that the conductor pattern on the first substrate is connected to an electrically conducting pattern on the foil at the area of a through-connection. By providing the through-connections just along an edge of the actual display section (i.e. close to the pixels), the resistance of the conductor pattern (usually ITO tracks) hardly influences the total resistance.

A further embodiment of a display device according to the invention is characterized in that the foil is flexible. Direct external contacts can be realized via such a flexible foil, but alternatively, such a foil can be bent around an edge of the substrate, with the conductor pattern being connected in a customary manner (for example, via anisotropic conductance) to a metallization pattern of, for example, a printed circuit board.

Another embodiment of a display device according to the invention is characterized in that electrically conducting patterns on both sides of the foil form a cross-connection. The use of such cross-connections further increases the number of possibilities of designing the circuit to be realized on the foil.

The invention is applicable to display devices which are based on liquid crystal effects or other electro-optical effects, in which an electro-optical material is present between two substrates. Such an embodiment is characterized in that the display device comprises a second substrate and an electro-optical material between the two substrates, each provided with picture electrodes defining pixels together with the interpositioned electro-optical material.

The display device may also be based on an electroluminescent effect.

These and other aspects of the invention are apparent from and will be elucidated with reference to the embodiments described hereinafter.

In the drawings:

Fig. 1 is a diagrammatic plan view of a part of a first embodiment of a display device according to the invention,

Fig. 2 is a diagrammatic cross-section taken on the line II-II in Fig. 1,

Fig. 3 shows diagrammatically a variant of a part of Fig. 2,

Fig. 4 shows another variant of a part of Fig. 2,

Fig. 5 is a diagrammatic plan view of a part of a second embodiment of a display device according to the invention, while

Fig. 6 is a diagrammatic cross-section taken on the line VI-VI in Fig. 5, and

Figs. 7 and 8 are cross-sections taken on the lines VII-VII and VIII-VIII in Fig.

5.

The Figures are diagrammatic and not to scale; corresponding components are generally denoted by the same reference numerals.

Fig. 1 is a diagrammatic plan view and Fig. 2 is a cross-section of a part of a display device, in this example a liquid crystal display device comprising a liquid crystal cell 1 with a twisted nematic liquid crystal material 2 which is present between two transparent substrates 3, 4 of, for example, glass or synthetic material, provided with electrodes 5, 6 in this embodiment. The device further comprises polarizers (not shown) whose direction of polarization is, for example, mutually crossed perpendicularly. The device also comprises orientation layers (not shown) which orient the liquid crystal material on the inner walls of the substrates, in this embodiment in such a way that the cell has a twist angle of 90 degrees. In this embodiment, the liquid crystal material has a positive optical anisotropy and a positive dielectric anisotropy. When the electrodes 5, 6 are energized with an electric voltage, the molecules, and hence the directors, direct themselves to the fields. The cell 1 is bounded by a cell wall or sealing edge 7.

The transparent electrodes 5, 6 of, for example, ITO (indium tin oxide) which mutually cross each other in this embodiment and define pixels at the area of the crossings must be provided with drive voltages. These may be applied externally, for example, via conducting tracks on a support, for example a printed circuit board.

In the embodiment shown in Fig. 1, the electrodes 5 are provided with drive voltages by means of a drive circuit (IC) 12 mounted on the first substrate 3. The electrodes 5 (and, by means of methods customary in LCD technology, also the electrodes 6) are connected via bumps 13. Other bumps 13 contact conductor patterns 14' on a foil 15. According to the invention, the foil (of, for example, polyimide) is provided with a conductor pattern on both sides. In this embodiment, the foil is flexible and has a metal pattern on one side, for example, a gold pattern 14 which defines connecting conductors. The gold pattern 14' on the other side

consists of contact areas only in this embodiment, which are connected in an electrically conducting manner to the pattern 14 via through-connections (or vias) 16. If necessary, the contact areas 14' are connected via conductors 5' to the bumps 13. The conductors 5' are not necessarily made of ITO but may be alternatively made of a metal or form part of a pattern of polysilicon tracks when (LT) poly-transistors instead of the drive IC are used for the connection.

In the embodiment of Fig. 3, use is made of an extra anisotropic conductor 16, in this embodiment a polyimide copper foil with for example conducting copper tracks transverse to the foil, for the electrical contact between the conductor 14' and the conductor 5 (now there is no IC 12).

Fig. 4 shows a variant in which the foil 15 with conductors 14 (as described above) extends as far as the edge 17 of the substrate 3. Fig. 4 clearly shows that a foil as described with reference to Fig. 2 can be bent around the substrate 3 so as to contact conductor tracks 19 on the surface of, for example, a printed circuit board 20, for example, via anisotropic conductors 18.

Fig. 5 and Fig. 6 show a variant in which a foil 15 on the substrate 3 has openings (denoted by means of dot-and-dash lines 21) for a display device 1 (for example, a poly LED display device or, as in this embodiment, an LCD display device) and an IC 12. The conductors 5, 14, 14' are shown arbitrarily for the sake of the example but are considered to form a functional whole. As is apparent from Fig. 5, it is possible to provide a pattern of conductors 14 on the surface of the foil 15, which pattern contacts the pattern 14' at the area of vias (through-connections) 16. In this manner it is possible, on the one hand, to contact the conductor tracks 5, analogously to Fig. 3. On the other hand, it is possible to locally interrupt a conductor track 14 at the area of vias on one side of the foil 15 and to realize the connection via through-connections 16 to a conductor track 14' on the other side of the foil 15. (Figures 7,8). In this embodiment, the greater part of the foil 15 (notably at the area of the conductor patterns 14, 14' and the through-connections) is secured to the substrate 5, for example, by means of an adhesive connection. If desired, all connections to external contacts may be realized on one side of the substrate, but connections from different sides are alternatively possible. Since the conductor pattern 14 is made of a low-ohmic material (gold, silver, nickel), there is a great freedom of design, while voltage losses due to long conductor tracks do not occur or hardly occur.

The invention is of course not limited to the embodiments shown, but many variations are possible within the scope of the invention. For example, instead of liquid crystal

material, other electro-optical materials such as electrophoretic or electrochromic materials may be used.

5

The invention resides in each and every novel characteristic feature and each and every combination of characteristic features.

Variable	Mean	SD	Min	Max	Median	Mode	Range	Skewness	Kurtosis	Normality
Age	35.5	10.5	20	65	35	35	45	0.5	3.0	0.05
Gender	1.5	0.5	1	2	1.5	1.5	1	0.0	0.0	0.00
Marital Status	2.5	1.0	1	4	2.5	2.5	1	0.5	2.0	0.05
Education	12.5	2.0	10	16	12.5	12.5	10	0.5	3.0	0.05
Income	1500	500	500	3000	1500	1500	500	0.5	3.0	0.05
Occupation	1.5	0.5	1	2	1.5	1.5	1	0.0	0.0	0.00
Religion	1.5	0.5	1	2	1.5	1.5	1	0.0	0.0	0.00
Health	2.5	1.0	1	4	2.5	2.5	1	0.5	2.0	0.05
Stress	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Depression	2.5	1.0	1	4	2.5	2.5	1	0.5	2.0	0.05
Life Satisfaction	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Resilience	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Self-Esteem	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Optimism	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Gratitude	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Forgiveness	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Empathy	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Compassion	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Kindness	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Generosity	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Patience	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Humility	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Modesty	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Shame	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Guilt	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Envy	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Jealousy	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Anger	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Dislike	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disrespect	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disobedience	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disloyalty	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disaffection	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disrespectfulness	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disobedient	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disloyal	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disaffected	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disrespectful	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disobedient	3.5	1.5	1	6	3.5	3.5	1	0.5	2.0	0.05
Disloyal	3.5	1.5	1	6	3.5	3.5				

CLAIMS:

1. A display device comprising a first substrate which is provided with a conductor pattern for connecting pixels in an electrically conducting manner, characterized in that at least a part of the substrate of a foil is provided with electrically conducting patterns on both sides of the foil, which patterns are mutually through-connected in an electrically
5 conducting manner via at least one opening in the foil.

2. A display device as claimed in claim 1, characterized in that the electrically conducting patterns on both sides of the foil are metal patterns.

10 3. A display device as claimed in claim 2, characterized in that the metals are chosen from the group of gold, silver and nickel.

15 4. A display device as claimed in claim 1, characterized in that the conductor pattern on the first substrate is connected to an electrically conducting pattern on the foil at the area of a through-connection.

5. A display device as claimed in claim 4, characterized in that the part of the foil provided with the through-connections is secured to the substrate.

20 6. A display device as claimed in claim 1, characterized in that the foil is flexible.

7. A display device as claimed in claim 4, characterized in that at least one of the electrically conducting patterns contacts a conductor pattern on a further support.

25 8. A display device as claimed in claim 1, characterized in that electrically conducting patterns realized on both sides of the foil form a cross-connection.

9. A display device as claimed in claim 1, characterized in that the display device comprises a second substrate and an electro-optical material between the two substrates, each

provided with picture electrodes defining pixels together with the interpositioned electro-optical material.

10. A display device as claimed in claim 1, characterized in that the display device
5 comprises an electroluminescent material.

Parameter	Value	Standard Error	z-Statistic	p-Value
Intercept	0.000	0.000	0.000	1.000
Age	0.000	0.000	0.000	1.000
Gender	0.000	0.000	0.000	1.000
Marital Status	0.000	0.000	0.000	1.000
Education	0.000	0.000	0.000	1.000
Income	0.000	0.000	0.000	1.000
Health	0.000	0.000	0.000	1.000
Religion	0.000	0.000	0.000	1.000
Occupation	0.000	0.000	0.000	1.000
Region	0.000	0.000	0.000	1.000
Time	0.000	0.000	0.000	1.000
Constant	0.000	0.000	0.000	1.000

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5 Fig. 5

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2
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1/2

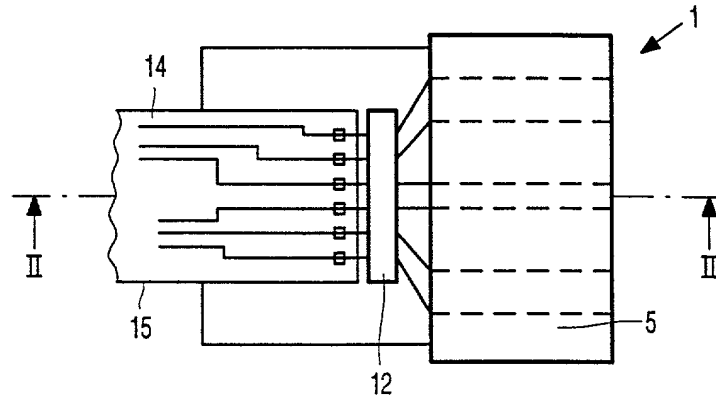


FIG. 1

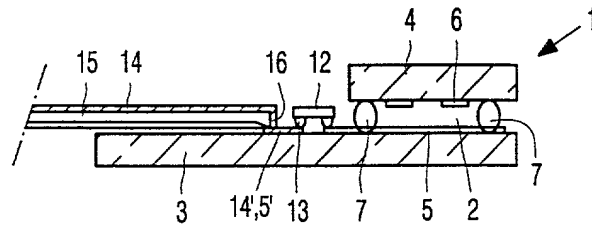


FIG. 2

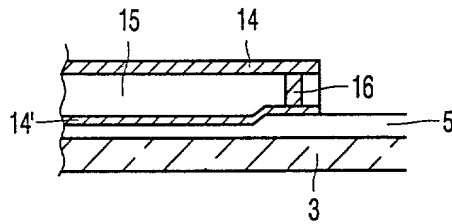


FIG. 3

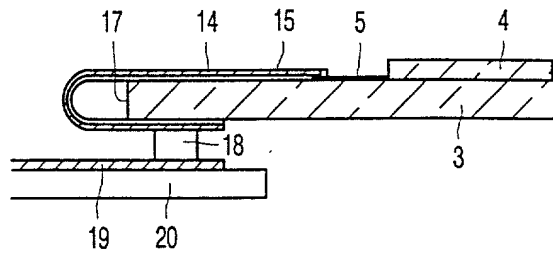


FIG. 4

2/2

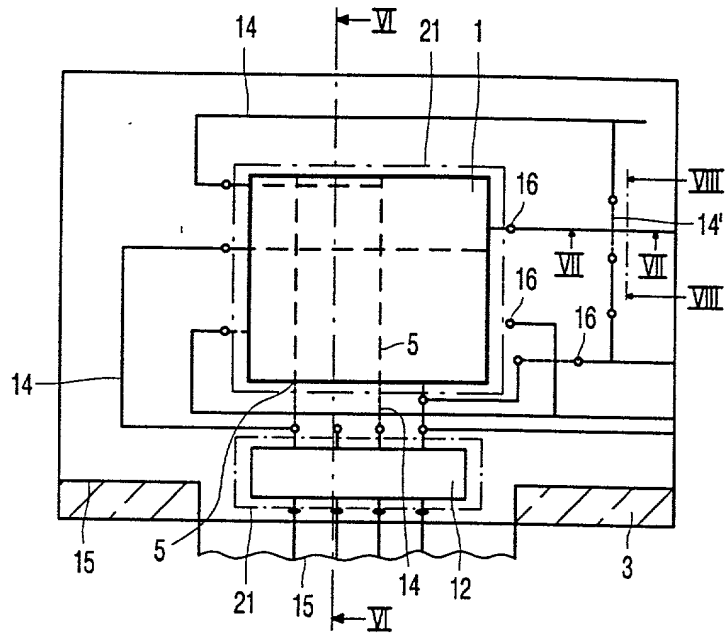


FIG. 5

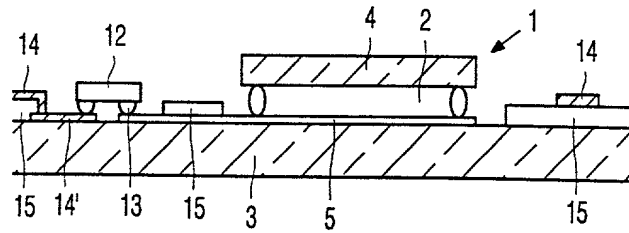


FIG. 6

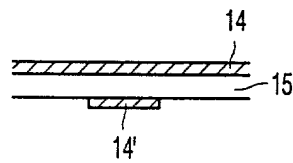


FIG. 7

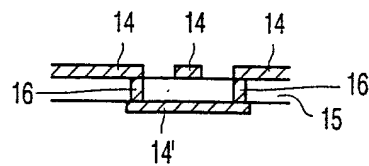


FIG. 8

DECLARATION and POWER OF ATTORNEY

ATTORNEY'S DOCKET NO.:
PHN 17.326 US

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

"Display device"

the specification of which (check one)

☐ is attached hereto.

☐ was filed on _____ as Application Serial No. _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by the amendment(s) referred to above.

I acknowledge the duty to disclose information which is material to patentability of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

PRIOR FOREIGN APPLICATION(S)

COUNTRY	APP. NUMBER	DATE OF FILING (DATE, MONTH, YEAR)	PRIORITY CLAIMED UNDER 35 U.S.C. 119
Europe	99200671.8	8 March 1999	YES

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35 United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

PRIOR UNITED STATES APPLICATION(S)

APPLICATION SERIAL NUMBER	FILING DATE	STATUS (PATENTED, PENDING, ABANDONED)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

Algy Tamoshunas, Reg. No. 27,677
Jack E. Haken, Reg. No. 26,902

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Dated:		Inventor's Signature:	
Full Name of in Inventor	Last Name	First Name	Middle Name
Residence & Citizenship	City	State of Foreign Country	Country of Citizenship
Post Office Address	Street	City	State of Country Zip Code

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Triepels et al.

Atty. Docket
PHN 17,326

Serial No.

Filed: Concurrently

Title: Display Device

Commissioner of Patents and Trademarks
Washington, D.C. 20231

APPOINTMENT OF ASSOCIATES

Sir:

The undersigned Attorney of Record hereby revokes all prior appointments (if any) of Associate Attorney(s) or Agent(s) in the above-captioned case and appoints:

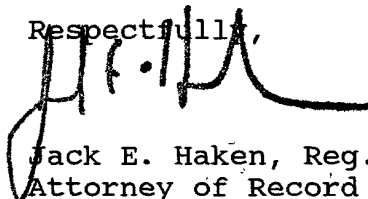
F. BRICE FALLER

(Registration No. 29,532)

c/o U.S. PHILIPS CORPORATION, Intellectual Property Department, 580 White Plains Road, Tarrytown, New York 10591, his Associate Attorney(s)/Agent(s) with all the usual powers to prosecute the above-identified application and any division or continuation thereof, to make alterations and amendments therein, and to transact all business in the Patent and Trademark Office connected therewith.

ALL CORRESPONDENCE CONCERNING THIS APPLICATION AND THE LETTERS PATENT WHEN GRANTED SHOULD BE ADDRESSED TO THE UNDERSIGNED ATTORNEY OF RECORD.

Respectfully,



Jack E. Haken, Reg. 26,902
Attorney of Record

Dated at Tarrytown, New York
this 29th day of February, 2000.